

REMARKS

The Office Action mailed May 11, 2004 and references cited therein have been reviewed. In an effort to place the above-identified patent application in allowable form, Applicants have, by this amendment, amended claims 55, 57-62, 69-78, 91, 94, 100-103, 105 and 108-109.

Applicants have noted the Examiner's acknowledgment of the election. The Examiner indicated that claims 65-69, 83-90, 96, 98 and 99 are drawn to the elected invention. As stated in the Amendment filed on February 17, 2004, independent claims 55 and 91 are generic to all of the dependent claims. As such, Applicants request that all withdrawn claims be reinstated upon allowance of the generic claims. The Examiner indicated that claim 86 should be withdrawn. Applicants submit that claim 86 forms a part of the elected invention.

Applicants also noted consideration of the information disclosure statement by the Examiner.

The Examiner raised several objections to the specification that was amended on June 13, 2000. The Examiner asserted that several of the amendments constitute new matter. Applicants submit that the "consisting" term obtained from the translation is in fact an "including" term with respect to United States patent practice. The term "consisting" is a term of art having a certain meaning in United States patent law. The term is used to limit the contents of composition of a particular claim limitation. The translated portion of the specification stated that the pyrolysis products "consist" of pyrolysis gases with condensable substances and a solid residue. As such, the pyrolysis products include pyrolysis gases without condensable substances, pyrolysis gases with condensable substances, and a solid residue. The specification states that one objective is to have as little condensable substances as possible in the pyrolysis gases. Applicants submit that the term "including" is consistent with the disclosure of the specification. Irrespective of the fact that the term "including" is supported by the originally filed specification, Applicants have substituted the

term “including”.

The Examiner also raised several objections to the specification concerning the use of the term “about” and also concerning several grammatical errors. Applicants have amended the specification to address each of the objections raised by the Examiner. Applicants submit that the specification is in proper and acceptable form.

The Examiner identified several formal errors in the pending claims. Applicants thank the Examiner for identifying such errors. Applicants have addressed these objections in this Amendment. Applicants submit that the pending claims are in proper form.

THE SECTION 112 (1) REJECTION

The Examiner stated that the terms “at least”, “at last partially”, “at least a portion of”, “at least one”, “at least partial”, and “at least two” are not supported by the original specification.

Claims 55 and 91 include the limitation “maintaining the organic containing substances and/or substance mixtures in contact with a solid heat carrier medium so that rapid pyrolysis takes place to at least partially cause said organic containing substances and/or substance mixtures to react into pyrolysis products.” This limitation is supported by the original specification on page 3, lines 24-26 which discloses that not all organic substances must be gasified, but a portion may only be gasified.

Claims 55 and 91 also include the limitation that “said at least partial pyrolysis of said organic containing material forming at least two pyrolysis products.” The specification discloses that steam can also be formed during the reaction if the feed stock is not dry. (See page 3, lines 18-23).

Claims 55 and 91 further include the limitation “feeding a majority of said solid residue and the solid heat carrier medium into a firing in which said solid residue containing carbon is fired to

at least partially form a waste gas and ash”. The limitation has support on page 9, lines 5-8 which discloses that a majority of the mixture is returned to the shaft kiln.

Claims 55 and 91 also include the limitation that “said solid residue containing carbon is fired to at least partially form a waste gas and ash”. This limitation is supported on page 9, lines 17-20 which discloses other products that are formed in the shaft kiln.

Claims 55 and 91 also include the limitation that “said solid heat carrier medium being a fire-resistant material having a sufficient mechanical, chemical and thermal stability at a temperature of at least 600°C”. Support for this limitation is found on page 5, lines 28-29.

Claims 55 and 91 include the limitation of “directing at least a portion of heat generated from said firing into said pyrolysis reaction, said generated heat at least partially heating said solid heat carrier medium”. Page 7, lines 16-25 disclose that not all the heat generated from the firing is directed to a single use.

Claim 55 includes the limitation of “feeding said pyrolysis gases and a reactant into a second reaction zone that is at least partially heated by an indirect heat exchanger to form a gas product having a high caloric value, said heat exchanger at least partially supplying heat from said firing”. Page 3, lines 18-23 disclose that the source of steam can be from a variety of sources, thus reaction zone 4 can be heated in a variety of ways. In addition, Page 9, lines 24-27 discloses another source of heat.

Claim 55 includes the limitation of “removing said ash from said firing and at least partially feeding said ash into said pyrolysis reactor”. Page 9, lines 9-14 disclose that not all the ash is returned to the pyrolysis reactor.

The Examiner stated that the specification was not enabling since the solid heat carrier medium must be fed to the pyrolysis reactor. Page 7, lines 14-19 disclose that heat from the firing

is directed to the pyrolysis reactor by a heat coupling 7. (See Fig. 1). Page 8 line 22 - Page 9, line 8 in conjunction with Fig. 4 discloses the movement of the solid heat carrier medium in one non-limiting embodiment. As a result, Fig. 1 discloses that heat from the firing is directed to the pyrolysis reactor by a heat coupling 7. One such heat coupling is disclosed in Fig. 4 wherein the solid heat carrier material itself is transported back to the pyrolysis reactor to provide heat; however, it could be appreciated that the heat coupling could include a heat exchanger or other heat conveying arrangement. Applicant submit that one inventive concept is the coupling of heat from the firing to the pyrolysis reactor; however, there is no language in the specification that limits the form of such coupling.

The Examiner asserted that the use of steel or ceramic balls as the solid heat carrier medium is not enabling. As the examiner admits, the use of steel or ceramic balls is disclosed in the specification. The specification also identifies the physical parameters of the solid heat carrier medium on page 6, line 28 - page 6, line 11. Such information is more than sufficient for one skilled in the art to determine the type of metal or ceramic material that can be used in the invention.

DOUBLE PATENTING

The Examiner stated that claims 81 and 82 are directed to the same invention, thus objected to under 37 CFR 1.75. Claim 81 is dependent on claim 55 and claim 82 is dependent on claim 80. Claim 80 is dependent on claim 78 which, through several intervening claims, ultimately depends on claim 55. As such, the inventions defined in claim 81 and 82 are not the same. Applicants request the objection be withdrawn.

SECTION 102 REJECTION

Claims 91, 93-95, 101-103 and 105-107 were rejected under 35 USC 102(b) as being anticipated by Deglise.

Deglise does not disclose, teach or suggest 1) the exposure of an organic containing material exposed to a solid heat carrier medium in the pyrolysis reactor to cause at least partial pyrolysis of the organic containing material, 2) the feeding of a majority of the solid carbon containing residue and the solid heat carrier medium into a firing, 3) the heating of the solid heat carrier medium by the firing, or 4) the feeding of at least a portion of the ash and the solid heated heat carrier medium from the firing to the pyrolysis reactor. Indeed, Deglise is absent any teachings concerning the use of a solid heat carrier medium that is circulated within a process used to gasify organic materials. The only material that is circulated in the process of Deglise is an organic material that travels through lines 8 and 14 and is partially circulated back into the pyrolysis reactor via tube 24. This organic material is not a solid heat carrier medium as defined in the present invention. As such, none of the pending claims is anticipated by Deglise.

THE SECTION 103 REJECTION

Claims 55, 59, 75, 79 and 81 were rejected under 35 USC 103(a) as being unpatentable over Deglise in view of Olsen. Claims 61 and 63 were rejected under 35 USC 103(a) as being unpatentable over Deglise in view of Olsen, and further in view of Velcich. Claims 71 and 73 were rejected under 35 USC 103(a) as being unpatentable over Deglise in view of Olsen, and further in view of Meunier. Claims 56-58 and 60 were rejected under 35 USC 103(a) as being unpatentable over Deglise in view of Olsen, and further in view of McIntosh. Claims 62, 64 and 70 were rejected under 35 USC 103(a) as being unpatentable over Deglise in view of Olsen, in view of McIntosh, and further in view of Velcich or Rudolph. Claims 72, 74, 76, 78, 80 and 82 were rejected under 35 USC 103(a) as being unpatentable over Deglise in view of Olsen, in view of McIntosh, and further in view of Velcich or Rudolph, and further in view of Meunier. Claims 92 and 100 were rejected under 35 USC 103(a) as being unpatentable over Deglise in view of McIntosh. Claims 97 and 104 were

rejected under 35 USC 103(a) as being unpatentable over Deglise in view of Velcich or Rudolph. Claims 108 and 109 were rejected under 35 USC 103(a) as being unpatentable over Deglise in view of Meunier.

All the rejections of the claims under 35 USC 103 rely on Deglise as the primary reference. As set forth above, Deglise discloses a process for gasifying organic materials that different from the process disclosed and claimed in the present invention. Deglise does not disclose, teach or suggest the use of solid heat carrier medium as disclosed and defined in the claims. All the materials that are circulating through the process of Deglise are organic products or by products.

A review of the references cited by the Examiner that are combined with Deglise do not include teachings that one skilled in the art would use to modify the process of Deglise to make or develop the process defined in the pending claims. Indeed, none of the cited references of record disclose, teach or suggest the use of a solid heat carrier medium that is recycled in a gasifying process.

Applicants submit that all the pending claims are in allowable form and notice to that effect is earnestly solicited.

Respectfully submitted,
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